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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/781,911
Filing Date: February 20, 2004
Appellant(s): NISHIKAWA ET AL.

Chid S. Iyer
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/28/2006 appealing from the Office action mailed 2/1/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct insofar as it maps the features of claims 1-3 to their disclosure in the specification. It is noted however that the

provision of the claimed transformer with plural secondary windings of different numbers of turns as discussed in the second paragraph of the "Summary of Claimed Subject Matter" is not a claimed feature (the claims set forth a transformer with broadly implied outputs, but do not set forth plural secondary windings with any specific turn numbers or ratios). It is also noted that the allusions to short circuiting arc welding and pulsed arc welding set forth in the last paragraph of the "Summary of Claimed Subject Matter" do not correspond to any explicitly claimed subject matter.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,645,741	Terayama et al.	7-1997
5,148,001	Stava	9-1992

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terayama et al. (5,645,741) taken with Stava (5,148,001). Figure 3 and the discussion at column 8, line 37 through column 9, line 20 in Terayama et al. (5,645,741) disclose an arc welder with features claimed, including: a rectifier circuit DR1; an inverter circuit TR1; transformer T1; a second rectifier circuit DR2; a first reactor LD1; a current circuit comprised of a third rectifier circuit DR4; a reactance LD2 connecting the current circuit in parallel with the second rectifier circuit. . In regard to the claim language specifying that the voltage applied to the current circuit is higher than the voltage applied to the second rectifier circuit and specifying that the output voltage of the second rectifier circuit is higher than the current circuit output, the same does not patentably distinguish over Terayama et al. (5,645,741). Figure 2 in Terayama et al. (5,645,741) clearly shows that the open circuit output voltage of the auxiliary power source (i.e., the power source associated with element DR4) is higher than the open circuit voltage of the main power source

(i.e., the source associated with DR2). The only way for this to happen is if the secondary voltage from T1 into DR4 is higher than the voltage into DR2, satisfying the claim language.

The claims differ from Terayama et al. (5,645,741) in specifying that the reactance associated with the current circuit has a larger reactance than the claimed first reactor and further in specifying particular inductance values in claim 2 for these reactors. These differences do not patentably distinguish over the prior art. Although the patent to Terayama et al. (5,645,741) does not explicitly discuss the values of the two reactors LD2 and LD1 (it does hint that LD2 is greater than LD1 by schematically showing more windings for LD2 than LD1 in the circuit diagram), it is considered obvious that the reactor LD2 has a larger inductance than LD1 on the basis of the functions these reactors perform. The inductance LD2 is intended to maintain the arc during interruptions, much as appellant's current circuit reactor does, while the inductance LD1 is in the main current branch of a constant voltage system (see the graph in figure 2). Since a relatively high inductance is useful for maintaining an arc and a high inductance would not be useful in a constant voltage system, it is considered obvious that the inductance LD2 is greater than the inductance of LD1. Further support for this position is found in Stava (5,148,001). The patent to Stava (5,148,001) discusses two parallel supplies, one a main welding supply, the other a background current supply, broadly similar to the situation of the Terayama et al. (5,645,741) system. The supplies in Stava (5,148,001) use two inductances as does the figure 3 system of Terayama et al. (5,645,741). At column 5, lines 30-35, the patent to Stava (5,148,001) discusses the relationship of the inductances, and teaches that the main welding circuit should have a lower inductance than the background circuit. It would have been obvious to have configured the

inductances in Terayama et al. (5,645,741) in the manner taught by Stava (5,148,001) to secure the advantages of this arrangement, thereby satisfying the limitation in claim 1. In regard to the particular inductance values of claim 2, the same are considered representative of routine engineering choices. It would have been obvious to have chosen these values for the system of Terayama et al. (5,645,741), depending on the specifics of a particular welding job, thereby satisfying the claim.

(10) Response to Argument

Appellant argues that Terayama et al. shows a transformer T1 with the same number of turns in the secondary windings providing power to respective rectifiers DR4 and DR2 and therefore, the transformer applies the same voltage to each of these rectifiers, contrary to the provisions of the claims. Appellant bases his argument on the schematic showing of element T1 in Terayama et al. wherein the draftsman has chosen to use the same number of loops to represent each of the secondary windings of T1. Appellant's argument is incorrect. The number of loops used by a draftsman to represent transformer secondary windings does not finally decide the matter of how many turns are actually in the secondary windings. The clear teaching of Terayama et al. is that the auxiliary power source associated with DR4 has a no-load voltage higher than that of the main power source (see for example the abstract or the output characteristics in figure 2 in Terayama et al.). This teaching of higher output voltage must take precedence over any artistic or aesthetic decisions made by a draftsman as to how a transformer is to be represented. The only way for the output voltage of DR4 to be higher than the output of

DR2 in the manner clearly disclosed in Terayama et al. is for the input voltage of DR4 to be higher than the input voltage of DR2. While it is Examiner's further position that the only reasonable or conceivable way for the relative voltage inputs into DR4 and DR2 to be achieved is for the secondary windings of T1 to have appropriately different turn ratios with respect to the primary winding, it should be noted that the claims do not explicitly mention transformer secondary windings or the turns ratios thereof. Also, while appellant places great importance on the number of loops shown in the drawing of T1 in Terayama et al., but it must be noted that appellant's own drawings are not consistent with his arguments. Appellant's inductors (elements 6 and 13) are disclosed as having substantially different values, where element 13 has at least 5 times the inductance of element 6, but in the drawings, these inductors are shown as having the same number of wire turns. This is a clear example of the dangers of reading too much into the flourishes of a draftsman. In accordance with applicant's argument, his own inductors 6 and 13 should be of equal value based on the loop count of their showing in the drawings, but the specification clearly teaches that these inductors have substantially different values.

Appellant further argues that "... Terayama et al. does not teach or suggest that the output voltage of the auxiliary rectifier DR4 is always higher than the output voltage of the secondary rectifier DR2, as required by claim 1." This argument is not convincing. Claim 1 does not require that the output of the current circuit is always higher than the output of the second rectifier circuit, merely that this output is higher, with no further elaboration in the claim as to the nature of this higher voltage. The load line of the auxiliary source shown in figure 2 of

Terayama et al. does not detract from the pertinence of the reference. This load line shows that the open circuit voltage (i.e., output current is zero) of DR4 is always greater than the open circuit voltage of DR2.

Appellant broadly alleges that Stava fails to overcome the deficiencies in the teachings of Terayama et al.. Appellant's allegations are not persuasive. The rejection of the claims on the basis of the teachings in Stava is considered proper for the reasons of record.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Clifford C. Shaw

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